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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/020,769	12/12/2001	Udo Beckmann	70280	8697

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EXAMINER	
NOGUEROLA, ALEXANDER STEPHAN	

ART UNIT	PAPER NUMBER
1753	

DATE MAILED: 10/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/020,769	BECKMANN, UDO
	Examiner	Art Unit
	ALEX NOGUEROLA	1753

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 August 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7 and 12-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *12-17* is/are allowed.

6)☒ Claim(s) *1-7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 December 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Applicant's amendment of August 04, 2004 does not render the application allowable.

Response to Arguments

2. Applicant's arguments filed August 04, 2004 have been fully considered but they are not persuasive.

With respect to the rejection of claim 1 under 35 U.S.C. 102(b) as being clearly anticipated by Dietze, Applicant asserts that Dietze does not disclose a potentiostat circuit, more particularly that Figure 3 and col. 6, ll. 8-15 of Dietze do not disclose a potentiostat circuit. The examiner respectfully disagrees. Applicant's own discussion of Dietze, in fact, acknowledges that Figure 3 and col. 6, ll. 8-15 disclose a potentiostat circuit. "Applicant notes that a potentiostat circuit maintains the voltage between two electrodes in a sensor constant, usually by varying the current in a third electrode of a sensor . . . The text of Dietze describes element 45 as a voltage source. Furthermore, column 6, lines 8-15 of Dietze describes measuring a current at a defined voltage of the voltage source 45." See the bottom paragraph of page 10 bridging to page 11. Is not the voltage source 45 that provides a defined voltage to sensor electrodes, as Applicant acknowledges, a potentiostat according to Applicant's definition?

Applicant also asserts that Dietze does not disclose measuring a voltage between two electrodes; however, this step is not in claim 1 and is not a necessary function of a potentiostat circuit. Furthermore, Dieztze discloses a voltage-measuring device. See col. 5, ll. 6-11

With respect to the rejection of claim 4 under 35 U.S.C. 102(b) as being clearly anticipated by Dietze, Applicant asserts that Dietze does not disclose a microprocessor controling the digital-to-analog convertor and an analog-to-digital converter to form a potentiostat circuit. That Dietze discloses a potentiostat circuit has already been addressed in the response above to Applicant's reply to the rejection of claim 1. Dietze states, "[t]he measuring and evaluation circuit **23** is realized according to digital techniques with a microprocessor. [emphasis added]" See col. 4, ll. 55-56. In the following sentence Dietze states that element 30 is a measurement and control unit. As seen from Figure 3 element 30 provides input signals to the digital-to-analog converter. Element 30 may also accept signals from element 37, which is a calibration value store, and element 36, an I/O device. The sensor shown in Figure 1, whose schematic is shown in Figure 3, is capable of stand-alone use. See col. 4, ll. 1-21. Thus, in light of Figures 1 and 3 and col. 4, ln. 55 – col. 5, ln. 5 one with ordinary skill in the art would understand that element 30, the measurement and control unit, is a processor, more particularly a microprocessor. See also col. 1, ln. 60 – col. 2, ln. 3, which discloses that using a microprocessor for evaluating and controling the circuits of a sensor was known in the art at the time of the invention.

Status of the Objections and Rejections pending since the Office action of May 04, 2004

3. The objection to claim 8 is withdrawn.

4. All of the rejections of claims 4-11 under 35 U.S.C. 112, second paragraph, are withdrawn.

5. The rejections of claims 1, 4, and 5 under 35 U.S.C. 102(b) as being clearly anticipated by Dietze are maintained. They have been present again below for Applicant's convenience.

6. All rejections under 35 U.S.C. 103(a) are withdrawn.

Claim Objections

7. Claim 4 is objected to because of the following informalities: line 4 contains a period and line 8 contains two periods. Appropriate correction is required.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1, 4, and 5 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Dietze et al. (US 5,282,950) ("Dietze").

Addressing Claim 1, Dietze teaches an electrochemical sensor (abstract) comprising

a sensor electrode array (Figure 2; col. 2, ll. 30-33; and col. 4, ll. 16-50);

an operating electronic unit integrated on a chip for operating the sensor electrode and for processing electrical signals received therefrom (col. 5, ll. 1-5), the operating electronic unit including a potentiostat circuit (element 45 in Figure 3 and see col. 6, ll. 8-15) and a microprocessor (col. 4, ll. 55-56) receiving and further processing signals processed by the operating electronic unit, the potentiostat circuit being a digital control circuit whose controller function is controlled by the microprocessor (col. 5, ll. 6-27 and col. 7, ll. 56-62), the microprocessor being integrated on the chip of the operating electronic unit (col. 4, ll. 55-56 and col. 5, ll. 1-5).

Addressing Claim 4, Dietze teaches an electrochemical sensor (abstract) comprising

a sensor electrode array (Figure 2; col. 2, ll. 30-33; and col. 4, ll. 16-50);

an operating electronic unit with a digital control circuit including an analog-to-digital converter connected to the array (Figure 3), a digital-to-analog converter connected to the array (Figure 3) and a microprocessor with a control algorithm connected to digital connections of the analog-to-digital converter and the digital-to-analog converter (Figure 3; col. 4, ll. 55-56; col. 5, ll. 1-5; and col. 5, ln. 64 – col. 8, ln. 4) to from a potentiostat circuit (col. 5, ll. 6-27) and col. 7, ll. 56-62) with the microprocessor receiving and processing signals (Figure 3); wherein the microprocessor, the analog-to-digital converter and the digital-to-analog converter being integrated on a single chip (col. 5, ll. 1-5).

Addressing Claim 5, a multiplexer as claimed may be seen in Figure 3 (element 53).

Claim Rejections - 35 USC § 103

10. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

11. Claims 2, 3, 6, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dietze et al. (US 5,282,950) ("Dietze").

Addressing claim 2, Dietze et al. teaches an electrochemical sensor (abstract) comprising

a sensor electrode array (Figure 2; col. 2, ll. 30-33; and col. 4, ll. 16-50);

an operating electronic unit integrated on a chip for operating the sensor electrode and for processing electrical signals received therefrom (col. 5, ll. 1-5), the operating electronic unit including a potentiostat circuit (element 45 in Figure 3 and see col. 6, ll. 8-15) and a microprocessor (col. 4, ll. 55-56) receiving and further processing signals processed by the operating electronic unit, the potentiostat circuit being a digital control circuit whose controller function is controlled by the microprocessor (col. 5, ll. 6-27 and col. 7, ll. 56-62), the microprocessor being integrated on the chip of the operating electronic unit (col. 4, ll. 55-56 and col. 5, ll. 1-5).

Dietze also discloses a memory unit (col. 4, ll. 60-61), but only mentions that it is for storing calibration values. However, it would have been obvious to one with ordinary skill in the art at the time the invention was made, if not necessary, to also use this memory unit to store operating parameters of the sensor array because Dietze discloses that the sensor user may key in commands and settings. See col. 4, ll. 16-21. Dietze, for example, discloses a measurement sequence involving five operating states, the measurement being made in the fifth state. See col. 5, ln 64- col. 8, ln. 4.

It is very unlikely that the operator keys in the commands to effect each state. Even if possible, it would have been obvious to one with ordinary skill in the art at the time the invention was made to allow the sensor user to select the type of measurement and set some operating parameters before the measurement is made (requiring that this information be stored) because this would be more convenient and would reduce the chance of error as the sensor user may be rushed if he has to rapidly press keys while performing the measurement. See col. 1, ll. 13-23.

Addressing Claims 3 and 7, as stated in the rejections of claim 2 in Dietze the microprocessor is programmed to step through an operating sequence of five different operating states. The first four operating states involve testing whether the sensor is in a satisfactory condition for making measurements. At least two of the operating states imply reading parameters from memory and using a control algorithm because these states each involve comparing a measurement to a threshold value (col. 6, ll. 34-53).

Addressing Claim 6, Dietze teaches an electrochemical sensor (abstract) comprising

a sensor electrode array (Figure 2; col. 2, ll. 30-33; and col. 4, ll. 16-50);

an operating electronic unit with a digital control circuit including an analog-to-digital converter connected to the array (Figure 3), a digital-to-analog converter connected to the array (Figure 3) and a microprocessor with a control algorithm connected to digital connections of the analog-to-digital converter and the digital-to-analog converter (Figure 3; col. 4, ll. 55-56; col. 5, ll. 1-5; and col. 5, ln. 64 – col. 8, ln. 4) to form a potentiostat circuit (col. 5, ll. 6-27) and col. 7, ll. 56-62) with the microprocessor receiving and processing signals (Figure 3); wherein the microprocessor, the analog-to-digital converter and the digital-to-analog converter being integrated on a single chip (col. 5, ll. 1-5).

Dietze also discloses a memory unit (col. 4, ll. 60-61), but only mentions that it is for storing calibration values. However, it would have been obvious to one with ordinary skill in the art at the time the invention was made, if not necessary, to also use this memory unit to store operating parameters of the sensor array because Dietze discloses that the sensor user may key in

commands and settings. See col. 4, ll. 16-21. Dietze, for example, discloses a measurement sequence involving five operating states, the measurement being made in the fifth state. See col. 5, ln 64- col. 8, ln. 4. It is very unlikely that the operator keys in the commands to effect each state. Even if possible, it would have been obvious to one with ordinary skill in the art at the time the invention was made to allow the sensor user to select the type of measurement and set some operating parameters before the measurement is made (requiring that this information be stored) because this would be more convenient and would reduce the chance of error as the sensor user may be rushed if he has to rapidly press keys while performing the measurement. See col. 1, ll. 13-23.

12. Claims 2, 3, 6, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dietze et al. (US 5,282,950) ("Dietze") in view of newly cited Bussmann et al. (US 5,665,215) ("Bussmann").

Addressing claim 2, Dietze et al. teaches an electrochemical sensor (abstract) comprising

a sensor electrode array (Figure 2; col. 2, ll. 30-33; and col. 4, ll. 16-50);

an operating electronic unit integrated on a chip for operating the sensor electrode and for processing electrical signals received therefrom (col. 5, ll. 1-5), the operating electronic unit including a potentiostat circuit (element 45 in Figure 3 and see col. 6, ll. 8-15) and a microprocessor (col. 4, ll. 55-56) receiving and further processing

signals processed by the operating electronic unit, the potentiostat circuit being a digital control circuit whose controller function is controlled by the microprocessor (col. 5, ll. 6-27 and col. 7, ll. 56-62), the microprocessor being integrated on the chip of the operating electronic unit (col. 4, ll. 55-56 and col. 5, ll. 1-5).

Dietze also discloses a memory unit (col. 4, ll. 60-61), but only mentions that it is for storing calibration values. However, it would have been obvious to one with ordinary skill in the art at the time the invention was made, if not necessary, to also use this memory unit to store operating parameters of the sensor array because Dietze discloses that the sensor user may key in commands and settings. See col. 4, ll. 16-21. Dietze, for example, discloses a measurement sequence involving five operating states, the measurement being made in the fifth state. See col. 5, ln 64- col. 8, ln. 4.

Bussmann discloses a biosensor having a memory coupled to a microprocessor for storing predefined parameter data values, a program (operating program), and user data. See the abstract and col. 2, ln. 62 – col. 3, ln. 5. It would have been obvious to one with ordinary skill in the art at the time the invention was made to also have the microprocessor and memory of Dietze configured to store predefined parameter values, an operating program, and user data because the sensor would then be easier to use. A person with little expertise with or knowledge of sensors could use the sensor without having to worry about pressing too many keys. This would be consistent with Dietze, which recognizes that analysis by means of disposable analysis elements "can be carried out with great accuracy by relatively untrained laboratory staff, or even by the patient himself." See col. 1, ll. 13-23.

Addressing Claims 3 and 7, as stated in the rejections of claim 2 in Dietze the microprocessor is programmed to step through an operating sequence of five different operating states. The first four operating states involve testing whether the sensor is in a satisfactory condition for making measurements. At least two of the operating states imply reading parameters from memory and using a control algorithm because these states each involve comparing a measurement to a threshold value (col. 6, ll. 34-53).

Addressing Claim 6, Dietze teaches an electrochemical sensor (abstract) comprising

a sensor electrode array (Figure 2; col. 2, ll. 30-33; and col. 4, ll. 16-50);

an operating electronic unit with a digital control circuit including an analog-to-digital converter connected to the array (Figure 3), a digital-to-analog converter connected to the array (Figure 3) and a microprocessor with a control algorithm connected to digital connections of the analog-to-digital converter and the digital-to-analog converter (Figure 3; col. 4, ll. 55-56; col. 5, ll. 1-5; and col. 5, ln. 64 – col. 8, ln. 4) to from a potentiostat circuit (col. 5, ll. 6-27) and col. 7, ll. 56-62) with the microprocessor receiving and processing signals (Figure 3); wherein the microprocessor, the analog-to-digital converter and the digital-to-analog converter being integrated on a single chip (col. 5, ll. 1-5).

Dietze also discloses a memory unit (col. 4, ll. 60-61), but only mentions that it is for storing calibration values. However, it would have been obvious to one with ordinary skill in the art at the time the invention was made, if not necessary, to also use this memory unit to store operating parameters of the sensor array because Dietze discloses that the sensor user may key in commands and settings. See col. 4, ll. 16-21. Dietze, for example, discloses a measurement sequence involving five operating states, the measurement being made in the fifth state. See col. 5, ln 64- col. 8, ln. 4.

Bussmann discloses a biosensor having a memory coupled to a microprocessor for storing predefined parameter data values, a program (operating program), and user data. See the abstract and col. 2, ln. 62 – col. 3, ln. 5. It would have been obvious to one with ordinary skill in the art at the time the invention was made to also have the microprocessor and memory of Dietze configured to store predefined parameter values, an operating program, and user data because the sensor would then be easier to use. A person with little expertise with or knowledge of sensors could use the sensor without having to worry about pressing too many keys. This would be consistent with Dietze, which recognizes that analysis by means of disposable analysis elements "can be carried out with great accuracy by relatively untrained laboratory staff, or even by the patient himself." See col. 1, ll. 13-23.

Allowable Subject Matter

13. Claims 12-17 are allowed.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALEX NOGUEROLA whose telephone number is (571) 272-1343. The examiner can normally be reached on M-F 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, NAM NGUYEN can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Alex Noguerola
Primary Examiner
AU 1753
October 21, 2004